Amendments to the Claims

Please cancel claims 40-42 without prejudice.

The following listing of claims will replace all prior versions and/or listings of claims in the application.

Listing of Claims:

1-32. (cancelled)

33. (previously presented) A method for injecting a first fluid of a first temperature at a first flow rate into a second fluid of a second temperature at a second flow rate in a high pressure and high temperature reaction system suitable for oxidative waste treatment, comprising:

transporting the first fluid in a first conduit adapted to transport the first fluid;

transporting the second fluid in a second conduit adapted to transport the second fluid, wherein the first conduit comprises an end within the interior of the second conduit, and wherein the first conduit is in fluid communication with the second conduit;

mixing the first and the second fluids in the second conduit within a mixing length downstream of the end of the first conduit, wherein the second conduit comprises a tube or liner having at least an inner surface area made of a corrosion resistant material and extending along the mixing length to inhibit corrosion of the second conduit;

wherein the first fluid is corrosive in a corrosive temperature range;

wherein the corrosive temperature range excludes the second temperature and includes the first temperature;

wherein the second temperature is selected to be lower than the corrosive temperature range;

wherein the first and second temperatures and the first and second flow rates are selected such that the temperature of the mixed fluids downstream of the mixing length is lower than the corrosive temperature range; and

wherein the first and second temperatures and the first and second flow rates are selected

such that the mixed fluids downstream of the mixing length are at a temperature that is substantially non-corrosive for the first fluid.

34. (cancelled)

35. (previously presented): The method of claim 33, wherein the first fluid is corrosive at the first temperature, and wherein at least an inner surface area of the first conduit is made of a corrosion resistant material to inhibit corrosion of the first conduit.

36. (previously presented): The method of claim 33, wherein the first fluid comprises nitric acid, and wherein the corrosive temperature range is between about 270 °C and about 380 °C.

37. (previously presented): The method of claim 33, wherein the first fluid comprises sulfuric acid.

38. (previously presented): The method of claim 33, wherein the first fluid comprises hydrochloric acid.

39. (previously presented): The method of claim 33, wherein the first fluid comprises a halogen.

40-42. (cancelled)

43. (previously presented): The method of claim 33, further comprising feeding the mixed fluids from the second conduit to a reactor of a high pressure and high temperature reaction system for oxidation of waste material.

44. (previously presented): The method of claim 33, wherein the second conduit comprises part of a reactor of a high pressure and high temperature reaction system for oxidation of waste material.

45. (cancelled)

46. (previously presented): The method of claim 33, wherein the second fluid comprises cooling water.

47. (previously presented): The method of claim 46, wherein the first fluid comprises destructed supercritical wastewater output from a reactor of a high pressure and high temperature reaction system.

48. (previously presented): The method of claim 47, wherein the mixed fluids in the second conduit are output from the high pressure and high temperature reaction system.

49. (currently amended): The method of claim 33, wherein at least the inner surface area of the tube or liner is made of a material selected from the group consisting of titanium, zirconium, platinum, tantalum, niobium, or alloys thereof.

50-70. (cancelled)

71. (previously presented): A method for injecting a first fluid of a first temperature at a first flow rate into a second fluid of a second temperature at a second flow rate in a high pressure and high temperature reaction system suitable for oxidative waste treatment, comprising:

transporting the first fluid in a first conduit adapted to transport the first fluid;

transporting the second fluid in a second conduit adapted to transport the second fluid, wherein the first conduit comprises an end within the interior of the second conduit, and wherein the first conduit is in fluid communication with the second conduit;

mixing the first and the second fluids in the second conduit within a mixing length downstream of the end of the first conduit, wherein the second conduit comprises a tube or liner having at least an inner surface area made of a corrosion resistant material and extending along the mixing length to inhibit corrosion of the second conduit;

wherein the first fluid is corrosive in a corrosive temperature range;

wherein the corrosive temperature range lies between the first temperature and the second temperature;

wherein the second temperature is selected to be lower than the corrosive temperature range;

wherein the first and second temperatures and the first and second flow rates are selected such that the temperature of the mixed fluids downstream of the mixing length is lower than the corrosive temperature range; and

wherein the first and second temperatures and the first and second flow rates are selected such that the mixed fluids downstream of the mixing length are at a temperature that is substantially non-corrosive for the first fluid.

72. (previously presented): The method of claim 71, wherein the first fluid comprises sulfuric acid.

73. (previously presented): The method of claim 71, wherein the first fluid comprises hydrochloric acid.

74. (previously presented): The method of claim 71, wherein the second fluid comprises cooling water.

75. (previously presented): The method of claim 74, wherein the first fluid comprises destructed supercritical wastewater output from a reactor of a high pressure and high temperature reaction system.

76. (previously presented): The method of claim 75, wherein the mixed fluids in the second conduit are output from the high pressure and high temperature reaction system.

77. (previously presented): The method of claim 71, wherein the first fluid comprises nitric acid, and wherein the corrosive temperature range is between about 270 °C and about 380 °C.

78. (currently amended): A method for injecting a first fluid of a first temperature at a first flow rate into a second fluid of a second temperature at a second flow rate in a high pressure and high temperature reaction system suitable for oxidative waste treatment, comprising:

transporting the first fluid in a first conduit adapted to transport the first fluid;

transporting the second fluid in a second conduit adapted to transport the second fluid, wherein the first conduit comprises an end within the interior of the second conduit, and wherein the first conduit is in fluid communication with the second conduit;

mixing the first and the second fluids in the second conduit within a mixing length downstream of the end of the first conduit, wherein the second conduit comprises a tube or liner having at least an inner surface area made of a corrosion resistant material and extending along the mixing length to inhibit corrosion of the second conduit, and upstream and downstream of the tube or liner, the second conduit comprises a ~~conventional~~ construction material for high pressure and high temperature reaction systems suitable for supercritical water oxidation;

wherein the first fluid is corrosive in a corrosive temperature range;

wherein the corrosive temperature range excludes the second temperature and includes the first temperature;

wherein the second temperature is selected to be higher than the corrosive temperature range;

wherein the first and second temperatures and the first and second flow rates are selected such that the temperature of the mixed fluids downstream of the mixing length is higher than the corrosive temperature range; and

wherein the first and second temperatures and the first and second flow rates are selected such that the mixed fluids downstream of the mixing length are at a temperature that is substantially non-corrosive for the first fluid.

79. (previously presented): The method of claim 78, wherein the first fluid comprises a halogen.

80. (previously presented): The method of claim 78, wherein the second fluid comprises

supercritical water.

81. (previously presented): The method of claim 80, wherein the second fluid comprises nitrogenous compounds.

82. (currently amended): The method of claim 78, wherein at least the inner surface area of the tube or liner is made of a material selected from the group consisting of titanium, zirconium, platinum, tantalum, niobium, or alloys thereof.

83. (previously presented): The method of claim 78, wherein the first fluid comprises nitric acid, and wherein the corrosive temperature range is between about 270 °C and about 380 °C.

84. (previously presented): The method of claim 78, wherein the first fluid comprises sulfuric acid.

85. (previously presented): The method of claim 78, wherein the first fluid comprises hydrochloric acid.

86. (currently amended): A method for injecting a first fluid of a first temperature at a first flow rate into a second fluid of a second temperature at a second flow rate in a high pressure and high temperature reaction system suitable for oxidative waste treatment, comprising:

transporting the first fluid in a first conduit adapted to transport the first fluid;

transporting the second fluid in a second conduit adapted to transport the second fluid, wherein the first conduit comprises an end within the interior of the second conduit, and wherein the first conduit is in fluid communication with the second conduit;

mixing the first and the second fluids in the second conduit within a mixing length downstream of the end of the first conduit, wherein the second conduit comprises a tube or liner having at least an inner surface area made of a corrosion resistant material and extending along the mixing length to inhibit corrosion of the second conduit and upstream and downstream of the tube or liner, the second conduit comprises a ~~conventional~~ construction material for high pressure

and high temperature reaction systems suitable for supercritical water oxidation;

wherein the first fluid is corrosive in a corrosive temperature range;

wherein the corrosive temperature range lies between the first temperature and the second temperature;

wherein the second temperature is selected to be higher than the corrosive temperature range;

wherein the first and second temperatures and the first and second flow rates are selected such that the temperature of the mixed fluids downstream of the mixing length is higher than the corrosive temperature range; and

wherein the first and second temperatures and the first and second flow rates are selected such that the mixed fluids downstream of the mixing length are at a temperature that is substantially non-corrosive for the first fluid.

87. (previously presented): The method of claim 86, wherein the first fluid comprises a halogen.

88. (previously presented): The method of claim 86, wherein the second fluid comprises supercritical water.

89. (previously presented): The method of claim 88, wherein the second fluid comprises nitrogenous compounds.

90. (currently amended): The method of claim 86, wherein at least the inner surface area of the tube or liner is made of a material selected from the group consisting of titanium, zirconium, platinum, tantalum, niobium, or alloys thereof.

91. (previously presented): The method of claim 86, wherein the first fluid comprises sulfuric acid.

92. (previously presented): The method of claim 86, wherein the first fluid comprises

hydrochloric acid.

93. (previously presented): The method of claim 86, wherein the first fluid comprises nitric acid, and wherein the corrosive temperature range is between about 270 °C and about 380 °C.